



PATENT

Our Docket: P-HP 3589

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of)	Group Art Unit: 1627
Lang and Pei)	
)	Examiner: G. Hsu
Serial No: 09/401,004)	
)	
Filed: September 21, 1999)	
)	
For: BENZIMIDAZOLE)	
DERIVATIVES AND)	
COMBINATORIAL LIBRAIRES)	
THEREOF)	
Asst. Commissioner for Patents		
Washington, D.C. 20231		

DECLARATION UNDER 37 U.S.C. SECTION 1.131

Sir:

I, Yazhong Pei, declare as follows:

1) I am the Yazhong Pei who is an inventor named in the above-identified subject invention.

2) I understand that claims 16 to 22 and 26 are rejected under 35 U.S.C. section 102(b) as allegedly anticipated by WO 99/40072 (hereinafter "the '072 application"), which was published on August 12, 1999.

3) As shown above, the above-identified application was filed on September 21, 1999, which is well within one year of the publication date of the '072 application.

4) Moreover, the subject invention was conceived and reduced to practice several months prior to the publication date of the '072 application.

5) In support of this contention, attached hereto is a copy of a memorandum from Hengyuan Lang, the other named inventor of the subject invention, and me. The memorandum, dated December 21, 1998, states that "TRG 4500," which is the designation of the subject combinatorial library, and whose reaction scheme and resulting compounds are the basis of the subject invention, was completed.

6) Also attached to this memorandum, and enclosed herewith, is a list of the building blocks used to make the subject combinatorial library.

7) The combinatorial library referred to in the attached memorandum is precisely the same as the one described in the examples of the subject application. Specifically, all of the building blocks listed in the attached memorandum and used to make the subject combinatorial library are precisely the same ones at the same positions as those described in the examples of the subject application.

8) More specifically: a) the 40 aldehydes listed in the memorandum precisely correspond to the 40 aldehydes listed at page 76, line 9 to page 77, line 16 of the subject application; b) the 18 amino acids or diamines

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listed in the memorandum precisely correspond to the 18 amino acids or diamines listed at page 77, line 27 to page 78, line 14 of the subject application; and c) the 28 amines listed in the memorandum precisely correspond to the 28 amines listed at page 79, line 16 to page 80, line 14 of the subject application.

I declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willfully false statements are punishable by fine or imprisonment under 18 U.S.C. Section 1001 and that any such statement may jeopardize the validity of the subject application or any patent issued thereon.

Yazhong Pei

Date



TREGA LIBRARY RELEASE MEMO

1 2 3 4
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To: J. Jaeger
cc: J. Kiely
From: Hengyuan Lang, Yazhong Pei
Date: 12/21/98
Subject: TRG 4500 Final Release Package

Attached is the information for the Final Release of TRG 4500, a Library of 1,2,5-Trisubstituted Benzimidazole Derivatives.

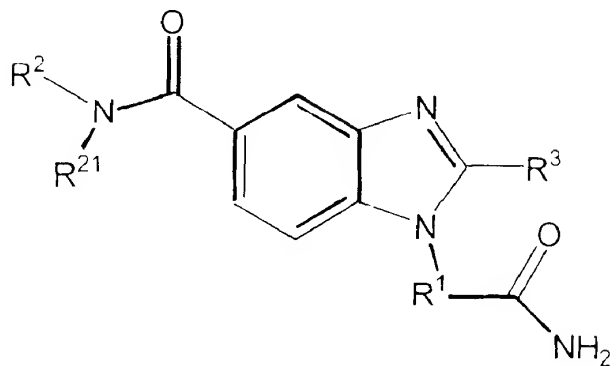
This Package includes:

- Library Summary (1 page).
- Assembly of Building Blocks Diagram (1 page).
- Library Synthesis Scheme (1 page).
- Plate list and Weight (1 page).
- List of Building Blocks for each set (3 page).
- Database of compounds for 3 sets (Electronic)

TRG 4500 consists of 20,160 single compounds in 252 (84 x 3) microtiter plates.

The library was prepared from 18 R1 (including 16 amino acids and 2 diamines), 28 R2 (primary and secondary amines) and 40 R3 (aldehydes, Set 2 and 3 have two substitutes) which were selected by diversity calculations. The 504 intermediates (18 R1 x 28 R2) were divided into 3 non-overlapping sets by NBA draft method. Each intermediate was reacted with 40 aldehydes and each plate contains two intermediates. The products were then analyzed by APCI-MS (direct injection) and by HPLC.

Patent Application:
Patent Filed:

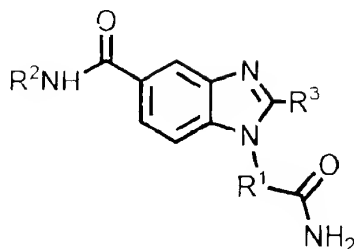
TRG 4500**1,2,5-Trisubstituted Benzimidazoles** R^1 = alkyl, aryl or alkylamino R^2 = alkyl or aryl R^{21} = H or alkyl R^3 = alkyl or arylLibrary Format: 18 R_1 X 28 R_2 X 40 R_3

Library Format: Single Compounds

	Min. MW	Max. MW	Median MW	Mean MW	Std Dev.
Library Data	314.39	792.86	527.62	534.46	73.15

Stock concentration: 10 mg/mL in DMSO

Resin: MBHA (1.3 mmol/g)

TRG 4500**R1 Amino Acids & Diamines**

BOC-Glycine
 BOC-Alanine
 BOC-beta-Alanine
 BOC-gamma-Aminobutyric Acid
 BOC-epsilon-Aminocaproic Acid
 BOC-Isoleucine
 BOC-Glutamine
 BOC-Methionine
 Boc-Valine
 BOC-Phenylglycine
 BOC-Phenylalanine
 BOC-Cyclohexylalanine
 BOC-4-Chloro-Phenylalanine
 BOC-Tryptophan
 BOC-Lysine (N'-trifluoroacetamide)
 BOC-Arginine (N'-tosyl)
 Ethylenediamine with CDI
 trans-1,4-Diaminocyclohexane with CDI

R2 Amines

1,3,3-trimethyl-6-azabicyclo(3.2.1)octane
 1-(4-fluorophenyl)piperazine
 1-acetylpiperazine
 p-anisidine
 4-phenoxyaniline
 2-(aminomethyl)-1-ethylpyrrolidine
 2-(aminomethyl)pyridine
 morpholine
 2-methyl-1-(3-methylphenyl)piperazine
 2-[2-(methylamino)ethyl]pyridine
 3,3,5-trimethylcyclohexylamine
 cyclohexylamine
 3-(trifluoromethyl)benzylamine
 6-aminoindazole
 beta-alanine ethyl ester hydrochloride
 cyclooctylamine
 cyclopropylamine
 dibenzylamine
 ethyl isonipecotate
 N,N-diethyl-N'-methylethylenediamine
 N-(3-aminopropyl)-2-pyrrolidinone
 N-(3-aminopropyl)morpholine
 4-toluidine

N-ethyl-4-picolyamine
 N-methylcyclohexylamine
 N-methylhomopiperazine
 butylamine
 2-aminothiazole

R3 Aldehydes

3-phenoxybenzaldehyde
 3-hydroxy-4-methoxybenzaldehyde
 4-acetamidobenzaldehyde
 4-phenoxybenzaldehyde
 4-bromothiophene-2-carboxaldehyde
 4-pyridinecarboxaldehyde
 2-methylbutyraldehyde
 4-chloro-3-nitrobenzaldehyde
 3-nitrobenzaldehyde
 2,3-dichlorobenzaldehyde
 2,5-difluorobenzaldehyde
 5-methyl-2-furaldehyde
 4-chloro-3-fluorobenzaldehyde
 4-formyl-2-phenylimidazole
 5-nitro-2-furaldehyde
 4-bromobenzaldehyde
 5-norbornene-2-carboxaldehyde
 6-nitropiperonal
 2-chloro-5-nitrobenzaldehyde
 5-hydroxy-2-nitrobenzaldehyde
 3-hydroxybenzaldehyde
 3,4-difluorobenzaldehyde
 4-dimethylaminobenzaldehyde
 2-thiophenecarboxyaldehyde
 4-cyanobenzaldehyde
 4-nitrobenzaldehyde
 2-fluorobenzaldehyde
 4-carboxybenzaldehyde
 2-bromobenzaldehyde
 2-chloro-3,4-dimethoxybenzaldehyde
 3-thiophenecarboxaldehyde
 4-quinolinecarboxaldehyde
 4-methyl-5-imidazolecarboxaldehyde
 4-hydroxybenzaldehyde
 2-ethyl-5-formyl-4-methylimidazole
 4-chloro-2-nitrobenzaldehyde
 3-pyridinecarboxaldehyde
 6-nitroveratraldehyde
 5-chloro-2-nitrobenzaldehyde
 2-nitrobenzaldehyde